# Static Routing (Cisco IOS)

**1. Overview:** Static routing is a method where network routes are manually configured and do not change unless updated by a network administrator. It is useful for small and predictable networks with minimal changes.

**2. Devices Required:**

* Two or more Cisco Routers (e.g., 2811 or 1941)
* Switches (optional for end device connections)
* End Devices (PCs or servers)
* Console Access

**3. Step-by-Step Static Routing Configuration**

**Network Topology Example:**

* Router1 LAN: 192.168.1.0/24
* Router2 LAN: 192.168.2.0/24
* Connection between routers: 10.0.0.0/30

**Step 1: Configure IP Addresses on Router Interfaces**

Router1:

Router1> enable

Router1# configure terminal

Router1(config)# interface fastEthernet 0/0

Router1(config-if)# ip address 192.168.1.1 255.255.255.0

Router1(config-if)# no shutdown

Router1(config)# interface fastEthernet 0/1

Router1(config-if)# ip address 10.0.0.1 255.255.255.252

Router1(config-if)# no shutdown

Router2:

Router2> enable

Router2# configure terminal

Router2(config)# interface fastEthernet 0/0

Router2(config-if)# ip address 192.168.2.1 255.255.255.0

Router2(config-if)# no shutdown

Router2(config)# interface fastEthernet 0/1

Router2(config-if)# ip address 10.0.0.2 255.255.255.252

Router2(config-if)# no shutdown

**Step 2: Add Static Routes**

Router1:

Router1(config)# ip route 192.168.2.0 255.255.255.0 10.0.0.2

Router2:

Router2(config)# ip route 192.168.1.0 255.255.255.0 10.0.0.1

**Step 3: Verify Routing Configuration**

Router# show ip route

Router# ping 192.168.2.1 (from Router1)

Router# ping 192.168.1.1 (from Router2)

**4. Additional Tips:**

* Ensure interfaces are up using show ip interface brief.
* Use traceroute to confirm path between networks.
* Use static routes only when network changes are rare.

**5. Conclusion:** Static routing provides full control over routing paths and is ideal for small networks. It reduces CPU usage compared to dynamic routing but requires manual updates if the topology changes.